

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A method of sensing multiple parameters, the method comprising:  
implanting an implantable sensor at a single site in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements operable through electrical communication with an external controller via a respective interconnect of a plurality of interconnects, each ~~of the interconnects~~ respective interconnect of the plurality of interconnects independently connected to a respective ~~one of the~~ implantable sensing element~~[[s]]~~ of the plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements ~~allowing~~ located within the housing of the implantable sensor, each implantable sensing element of the plurality of implantable sensing elements for sensing within the housing of the implantable sensor at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte; and  
reading an output from at least one implantable sensing element of the plurality of implantable sensing elements~~[[,]]~~  
wherein a plurality of parameters are read from the implantable sensor at the single site~~[[,]]~~  
wherein the output read from ~~said the~~ at least one implantable sensing element of the plurality of implantable sensing elements is a quantifiable value~~[[,]]~~ and  
wherein the plurality of interconnects are equal in number to the plurality of implantable sensing elements.
2. (Previously Presented) The method of Claim 1, wherein at least one particular implantable sensing element of the plurality of implantable sensing elements is a biological parameter sensor.

3. (Previously Presented) The method of Claim 1, wherein at least one particular implantable sensing element of the plurality of implantable sensing elements is a physiological parameter sensor.
4. (Previously Presented) The method of Claim 1, wherein at least one particular implantable sensing element of the plurality of implantable sensing elements is an analyte sensor.
5. (Currently Amended) The method of Claim 1, wherein reading an output from ~~said~~ the at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from an implantable sensing element of the plurality of implantable sensing elements that responds to lactate.
6. (Currently Amended) The method of Claim 1, wherein reading an output from ~~said~~ the at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from an implantable sensing element of the plurality of implantable sensing elements that responds to blood oxygen saturation.
7. (Currently Amended) The method of Claim 1, wherein reading an output from ~~said~~ the at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from an implantable sensing element of the plurality of implantable sensing elements that responds to blood pressure.
8. (Currently Amended) The method of Claim 1, wherein reading an output from ~~said~~ the at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from an implantable sensing element of the plurality of implantable sensing elements that responds to glucose.

9. (Currently Amended) The method of Claim 1, wherein reading an output from ~~said~~ the at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from an implantable sensing element of the plurality of implantable sensing elements that responds to temperature.

10. (Currently Amended) The method of Claim 1, wherein reading an output from ~~said~~ the at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from an implantable sensing element of the plurality of implantable sensing elements that responds to potassium.

11. (Currently Amended) The method of Claim 1, wherein reading an output from ~~said~~ the at least one implantable sensing element of the plurality of implantable sensing elements comprises reading an output from at least one implantable sensing element of the plurality of implantable sensing elements that responds to pH.

12. (Currently Amended) The method of Claim 1, further comprising administering therapy to the patient based on the output read from the at least one implantable sensing element of the plurality of implantable sensing elements.

13. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for myocardial ischemia.

14. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for myocardial infarction.

15. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for angina.

16. (Original) The method of Claim 12, wherein administering therapy comprises adjusting a function of an implantable cardiovascular defibrillator disposed within the patient.
17. (Original) The method of Claim 12, wherein administering therapy comprises adjusting a placement of an implantable cardiovascular defibrillator disposed within the patient.
18. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for sepsis.
19. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for septic shock.
20. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for a patient receiving extracorporeal membrane oxygenation.
21. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for a patient undergoing cardiac bypass.
22. (Original) The method of Claim 12, wherein administering therapy comprises administering therapy for a patient during dialysis.
23. (Currently Amended) The method of Claim 1, further comprising classifying a severity of a condition of the patient based on the output read from said the at least one implantable sensing element of the plurality of the implantable sensing elements.
24. (Original) The method of Claim 1, wherein the patient is in a surgical environment.
25. (Original) The method of Claim 1, wherein the patient is in an intensive care environment.

26. (Currently Amended) A method of evaluating a patient, the method comprising:

implanting an implantable sensor in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements operable through electrical communication with an external controller via a respective interconnect of a plurality of interconnects, ~~each of the interconnects~~ respective interconnect of the plurality of interconnects independently connected to a respective ~~one of the~~ implantable sensing element of the plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements ~~allowing~~ located within the housing of the implantable sensor, each implantable sensing element of the plurality of implantable sensing elements for sensing within the housing of the implantable sensor at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte;

reading an output from at least one implantable sensing element of the plurality of implantable sensing elements; and

evaluating the patient based on the output read from the at least one implantable sensing element;[[,]]

wherein a plurality of parameters are read from the implantable sensor at a single site;[[,]]

wherein the output read from ~~said the~~ at least one implantable sensing element of the plurality of implantable sensing elements is a quantifiable value;[[,]] and

wherein the plurality of interconnects are equal in number to the plurality of implantable sensing elements.

27. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to lactate.

28. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to blood oxygen saturation.

29. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to blood pressure.

30. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to glucose.

31. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to temperature.

32. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to potassium.

33. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient based on an output from a particular implantable sensing element of the plurality of implantable sensing elements that responds to pH.

34. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient for myocardial ischemia.

35. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient for myocardial infarction.

36. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient for angina.

37. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient having an implantable cardiovascular defibrillator.

38. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient for sepsis.

39. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient receiving extracorporeal membrane oxygenation.

40. (Previously Presented) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient while the patient is undergoing a cardiac bypass.

41. (Original) The method of Claim 26, wherein evaluating the patient comprises evaluating the patient during dialysis.

42. (Currently Amended) A method of sensing multiple parameters, the method comprising:  
implanting an implantable sensor at a single site in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each implantable sensing element[[s]] of the plurality of implantable sensing elements operable through electrical communication with an external controller via a respective one of a plurality of interconnects, each ~~of the interconnects~~ respective interconnect of the plurality of interconnects independently connected to a respective ~~one of the~~ implantable sensing element[[s]] of the

plurality of implantable sensing elements, each of the implantable sensing element of the plurality of implantable sensing elements located within the housing of the implantable sensor, each implantable sensing element of the plurality of a parameter implantable sensing elements for sensing within the housing of the implantable sensor at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte; and

reading an output from at least one implantable sensing element of the plurality of implantable sensing elements;[[,]]

wherein a plurality of parameters are read from the implantable sensor at the single site;[[,]]

wherein the output read from said the at least one implantable sensing element of the plurality of implantable sensing elements is a quantifiable value;[[,]] and

wherein the plurality of interconnects are equal in number to the plurality of implantable sensing elements.

43. (Currently Amended) A method of sensing multiple parameters, the method comprising:

implanting an implantable sensor at a single site in a patient, the implantable sensor having a housing within which are disposed a plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements operable through electrical communication with an external controller having a plurality of interconnects, each of ~~the interconnects~~ respective interconnect of the plurality of interconnects independently connected to a respective implantable sensing element of the plurality of implantable sensing elements, each implantable sensing element of the plurality of implantable sensing elements ~~allowing~~ located within the housing of the implantable sensor, each implantable sensing element of the plurality of implantable sensing elements for sensing within the housing at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte; and

reading an output from at least one implantable sensing element of the plurality of implantable sensing elements;[[,]]



wherein a plurality of parameters are read from the implantable sensor at the single site;[[,]]

wherein the output read from said at least one implantable sensing element of the plurality of implantable sensing elements is a quantifiable value;[[,]]

wherein the plurality of implantable sensing elements comprises at least one of a lactate sensing element for measuring a parameter for blood lactate level, a blood oxygen saturation sensing element for measuring a parameter for blood oxygen level, and a pH level sensing element for measuring a parameter for pH level;[[,]] and

wherein the plurality of interconnects are equal in number to the plurality of implantable sensing elements.

44. (Currently Amended) The method of Claim 43, further comprising ~~the step of administering~~ therapy for myocardial ischemia to the patient based on the output read from the at least one implantable sensing element.

45. (Currently Amended) The method of Claim 43, further comprising ~~the step of administering~~ therapy for myocardial infarction or angina to the patient based on the output read from the at least one implantable sensing element of the plurality of implantable sensing elements.

46. (Currently Amended) The method of Claim 43, further comprising ~~the step of implanting~~ implanting an implantable cardiovascular defibrillator (ICD) into the patient and administering defibrillation on the patient based on the output read from the at least one implantable sensing element of the plurality of implantable sensing elements.

47. (Currently Amended) The method of Claim 43, further comprising ~~the step of administering~~ therapy for sepsis or septic shock to the patient based on the output read from the at least one implantable sensing element of the plurality of implantable sensing elements.

48. (Currently Amended) The method of Claim 43, further comprising the step of administering therapy for extracorporeal membrane oxygenation (ECMO) to the patient based on the output read from the at least one implantable sensing element of the plurality of implantable sensing elements.

49. (Currently Amended) The method of Claim 1, wherein each respective ~~the individual~~ interconnect of the plurality of interconnects between each implantable sensing element of the plurality of implantable sensing elements and the external controller does not pass through any other implantable sensing element of the plurality of implantable sensing elements.

50. (Currently Amended) The method of Claim 26, wherein each respective ~~the individual~~ interconnect of the plurality of interconnects between each implantable sensing element of the plurality of implantable sensing elements and the external controller does not pass through any other implantable sensing element of the plurality of implantable sensing elements.

51. (Currently Amended) The method of ~~claim~~ Claim 1,  
wherein the external controller is external to the housing of the implantable sensor; and  
wherein each respective ~~the individual~~ interconnect of the plurality of interconnects between each implantable sensing element of the plurality of implantable sensing elements and the external controller is separate from all other ~~individual~~ interconnects for every other implantable sensing element of the plurality of implantable sensing elements on a corresponding communication path from each ~~the~~ implantable sensing element of the plurality of implantable sensing elements to the external controller.

52. (Currently Amended) The method of ~~claim~~ Claim 26,  
wherein the external controller is external to the housing of the implantable sensor; and  
wherein each respective ~~the individual~~ interconnect of the plurality of interconnects between each implantable sensing element of the plurality of implantable sensing elements and

the external controller is separate from all other ~~individual~~ interconnects for every other implantable sensing element of the plurality of implantable sensing elements on a corresponding communication path from each the implantable sensing element of the plurality of implantable sensing elements to the external controller.

53. (Currently Amended) The method of ~~claim~~ Claim 43,

wherein the external controller is external to the housing of the implantable sensor; and  
wherein each respective ~~individual~~ interconnect of the plurality of interconnects between each implantable sensing element of the plurality of implantable sensing elements and the external controller is separate from all other ~~individual~~ interconnects of the plurality of individual interconnects on a corresponding communication path from each the implantable sensing element of the plurality of implantable sensing elements to the external controller.

54. (Currently Amended) The method of ~~claim~~ Claim 42, wherein each implantable sensing element of the plurality of implantable sensing elements is operable through electrical communication with an external controller via a respective individual interconnect of a plurality of individual interconnects.

55. (Currently Amended) The method of ~~claim~~ Claim 42, wherein each implantable sensing element of the plurality of implantable sensing elements allows for sensing at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte.

56. (Currently Amended) A method of ~~claim~~ Claim 42, wherein each implantable sensing element of the plurality of implantable sensing elements is electrically connected to an electrical conductor that extends out of the housing of the implantable sensor.

57. (Currently Amended) A method of ~~claim~~ Claim 42, wherein each implantable sensing element of the plurality of implantable sensing elements is electrically connected to an electrical

conductor that is electrically connectable to a remote device outside of the housing of the implantable sensor.

58. (Currently Amended) A method of ~~claim~~ Claim 42, wherein each implantable sensing element of the plurality of implantable sensing elements is electrically connected to an electrical conductor that is electrically connectable to a controller.

59. (Currently Amended) A method of ~~claim~~ Claim 1, wherein each implantable sensing element of the plurality of implantable sensing elements is coupled by wire for electrical communication with the external controller.

60. (Currently Amended) A method of ~~claim~~ Claim 26, wherein each implantable sensing element of the plurality of implantable sensing elements is coupled by wire for electrical communication with the external controller.

61. (Currently Amended) A method of ~~claim~~ Claim 43, wherein each implantable sensing element of the plurality of implantable sensing elements is coupled by wire for electrical communication with the external controller.

62. (Currently Amended) The method of ~~claim~~ Claim 1,  
wherein each ~~of the~~ implantable sensing element~~[[s]]~~ of the plurality of implantable sensing elements of the comprises a respective power supply of a plurality of power supplies~~[[,]]~~  
and

wherein the respective power supply of each ~~of the~~ implantable sensing element~~[[s]]~~ of the plurality of implantable sensing elements is for powering the implantable sensing element.

63. (Currently Amended) The method of ~~claim~~ Claim 26,

wherein each ~~of the~~ implantable sensing element[[s]] of the plurality of implantable sensing elements of the comprises a respective power supply of a plurality of power supplies;[[,]]  
and

wherein the respective power supply of each ~~of the~~ implantable sensing element[[s]] of the plurality of implantable sensing elements is for powering the implantable sensing element.

64. (Currently Amended) The method of ~~claim~~ Claim 42,

wherein each ~~of the~~ implantable sensing element[[s]] of the plurality of implantable sensing elements of the comprises a respective power supply of a plurality of power supplies;[[,]]  
and

wherein the respective power supply of each ~~of the~~ implantable sensing element[[s]] of the plurality of implantable sensing elements is for powering the implantable sensing element.

65. (New) The method of Claim 1, the housing having an aperture for allowing each implantable sensing element of the plurality of implantable sensing elements to sense within the housing of the implantable sensor the at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte.

66. (New) The method of Claim 65, the aperture for allowing fluid to pass into a volume inside the housing of the implantable sensor to allow each implantable sensing element of the plurality of implantable sensing elements to sense within the housing of the implantable sensor the at least one of a respective biological parameter, a respective physiological parameter, and a respective analyte.

67. (New) The method of Claim 1, wherein each implantable sensing element of the plurality of implantable sensing elements is disposed completely within the housing of the implantable sensor.

68. (New) The method of Claim 1, wherein each respective interconnect of the plurality of interconnects connects with the respective implantable sensing element inside the housing of the implantable sensor.